

XIV.

MALIGNANT DISEASE OF THE ŒSOPHAGUS

SUCCEEDED BY

SUDDEN PERICARDITIS, AND ULTIMATELY BY
PNEUMO-PERICARDIUM WITH EFFUSION.

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SYSTEMATIC writers on diseases of the heart have, for the most part, acknowledged three different ways in which an accumulation of air in the inflamed pericardial sac may be determined. 1st. Gas may be the direct product of the irritated membrane itself. It is admitted that occasionally air is produced in the cavities of the pleura and peritoneum when these are the seat of inflammatory action, and if so, there can be no reason why the same formation, or pneumatosis, should not occur within the pericardium. Dr. Stokes has recorded a case of this nature,¹ to which, in connection with a brief discussion of the physical signs of pneumo-pericardium, I shall again allude.

2nd. Gas may result from the decomposition of fluid within the pericardium. Laënnec² and others have not only pointed out the physical signs which indicate this lesion, but—the former more particularly—have in all probability greatly exaggerated the frequency of its occurrence. The effusion of air

¹ 'Diseases of the Heart and Aorta,' p. 21.

² 'Traité de l'Auscultation Médiate.'—"Du Pneumo-Pericarde."

and fluid into the pericardium was, in the opinion of Laënnec, a phenomenon likely to occur in the last stage of all diseases, and its existence he was wont to determine both by percussion and auscultation. “L'épanchement liquide et aëiforme à la fois du péricarde peut avoir lieu dans l'agonie de toutes les maladies. Il m'est arrivé quelquefois de l'annoncer à une résonnance plus claire du bas du sternum, survenue depuis peu de jours, ou à un bruit de fluctuation déterminé par les battements du cœur et par les inspirations fortes.” In a case recorded by M. Bicheteau—to which reference will be found in Bouillaud's work (*Traité des Maladies du Cœur*), as well as in a note by Andral to his edition of Laënnec's treatise, and which is also noticed by Dr. Stokes and Dr. Walshe—the diagnosis of air as well as fluid existing in the pericardium was made during the life of the patient, chiefly from the presence of a peculiar sound with the heart's action, compared by Bicheteau to that produced by a water-wheel (*l'eau agitée par la roue d'un moulin*), while on examination after death the pericardium was found occupied by a purulent fluid of very fetid character, air escaping with a whistling sound when the sac was opened.

3rd. Gas may reach the pericardium from a distance through perforation, and this again may be the result of direct injury or of disease. Further, in such circumstances the source of the air may be various. A remarkable case is mentioned by Dr. Walshe in which a communication was established between the œsophagus and pericardium, in an attempt to swallow a long blunt instrument, a juggler's knife—the case terminated fatally. The physical signs in this instance, to which I shall refer, were of great interest and clearly established by Dr. Walshe.¹ A case of traumatic pneumo-pericardium, unattended by inflammation and resulting in complete recovery, is given by Dr. Flint, to whom it was related by Dr. Knapp of Louisville. The patient was stabbed with a knife, which penetrated the pleural cavity and perforated slightly the pericardium.² After the operation of paracentesis pericardii and injection of iodine, physical signs precisely similar to those met with in traumatic cases have been discovered. Such resulted in the memorable

¹ ‘Diseases of the Heart,’ pp. 46 and 271.

² Flint on ‘Diseases of the Heart,’ p. 357.

instance recorded by M. Aran, under the title, "*Pericardite avec épanchement, traitée avec succès par la ponction et l'injection iodée,*"¹ Of communication established between the pericardium and neighbouring organs through the progress of disease, and permitting the entrance of air into the cavity of the former, cases have been already recorded by different writers. Dr. Graves, in his '*Clinical Medicine,*' has furnished a remarkable example of communication by fistulous opening between the stomach and an hepatic abscess on the one hand, and the pericardium on the other. Dr. M'Dowel exhibited to the Pathological Society of Dublin the morbid appearances in a case of communication established between a cavity in the left lung and the pericardium.²

When the close anatomical relationship of the œsophagus to the pericardium—the former lying in the posterior mediastinum in contiguity with the posterior portion of the pericardium for nearly two inches—is held in remembrance, it will be seen how, in their conditions of disease, likewise, the one is very apt to influence the other. The pressure exerted on the œsophagus by a distended pericardium, may unquestionably determine dysphagia, a symptom of pericarditis, which, though recognised by Testa, has only been duly insisted upon by Dr. Stokes, by whom, however, it is regarded as less a mechanical than a vital effect of pericarditis. The case I am now to record is one which illustrates the intimate connection to which reference has been made—disease of a cancerous nature, primarily affecting the œsophagus, subsequently involved adjacent organs, in particular giving rise to pericarditis with effusion, and ultimately, by perforation to pneumo-pericardium.

CASE.—Mrs. W—, æt. 43,³ mother of seven children, admitted to Ward XIII, 29th July, 1862. She had for several months previously been under the care of Dr. Hislop, of North Berwick, from whom, at the time of her admission, I received the following brief account:—"She had been suffering from increasing difficulty in swallowing, at first considered to arise from spasm in the muscles of the œsophagus—

¹ '*Bulletin de l'Académie de Médecine,*' Séance du 6 Novembre, 1855. See also Trousseau, '*Clinique Médicale de l'Hôtel Dieu de Paris,*' p. 720, vol. i.

² For both cases, see also Dr. Stokes's work, pp. 23, 25.

³ Report subsequent to patient's entering the Hospital, furnished by Dr. James Grant.

an opinion which was strengthened by the relief she experienced after passing the probang on several occasions. A month or more ago, in attempting to pass the probang much greater difficulty was experienced, and its use was finally desisted from. She suffered much about the same time from vomiting, and once brought up some blood with mucus." Dr. Hislop added, "From the pain she feels in the back, the increasing difficulty in deglutition, and the general features of the case, I fear that the morbid deposit is of a malignant character. I have for some time been doing nothing but supporting the system."

State on admission.—Patient presents an anxious expression of countenance, is very anæmic, without history of hæmorrhage or renal disease. No albuminuria. As far as can be determined, the only cause for her present condition is defective alimentation, on account of dysphagia, which, coming on gradually, had existed more or less for nearly two years. She has almost constant vomiting, or rather there occurs immediate rejection of the food before it has reached the stomach. Has little or no pain. On careful examination of the chest, no abnormal indication is furnished either by the lungs or heart. Abdominal organs apparently free from disease.

From the time of admission the opinion gradually gained weight that the patient laboured under malignant disease of the lower portion of the œsophagus.

August 22nd.—Under a careful regulation of diet some improvement has resulted. The dysphagia and vomiting have greatly abated. *Vespere.*—Has this evening complaint of headache and pain in the chest.

23rd.—After the application of a sinapism the pain in the chest was relieved. On auscultation, a distinct to-and-fro pericardial friction sound is audible over the region of the heart. There is no increase of precordial dulness. In the evening the patient fainted, losing consciousness for a very brief period; but on her recovery from the swoon remaining cold and collapsed in appearance, with almost imperceptible pulse. Brandy was administered, and warmth applied externally.

24th.—Remained very much sunk during the whole night; the surface of body covered with clammy moisture; at times becoming almost pulseless; when perceptible, the pulsations at wrist numbered 120. Brandy and aromatic spirit of ammonia were given freely. She is now—*Noon*—a little stronger, free from pain and without dyspnœa. The friction sound over the heart has lost nothing of its distinctness.

25th.—Has continued in much the same state. The attrition sound with the heart is not quite so distinct, and now there exists a little increase of dulness on percussion, with appearance of slight fulness in the fourth and fifth left intercostal spaces near the sternum.

26th.—More sunk in appearance. Physical signs have undergone no change.

27th and 28th.—In much the same state.

29th.—On auscultation to-day at visit, a very remarkable character of the heart's sounds was noticed. The friction is replaced by a gurgling

noise, a *churning splash*, audible over the whole cardiac region, and rendered more distinct when, for an instant, the patient holds her breath. This sound is not distinguishable at a distance from the chest. The dulness on percussion over the heart has vanished, and now a clear and nearly tympanitic note prevails, with increased fulness in precordial region. The patient's extreme weakness forbids any attempts to alter her position in bed; the effect of change of posture on the percussion note cannot therefore be determined.

30th.—Physical signs remain as yesterday.

31st.—Patient died at 9 a.m.

In endeavouring to explain the remarkable physical phenomena connected with the heart, which presented themselves during the closing days of this poor woman's life, I considered it probable that the pericarditis, of which, on the 23rd of August, the signs were perfectly distinct, was determined by the progress of the cancerous affection of the œsophagus to the posterior wall of the pericardium; and when, on the 29th, the friction sound over the heart was replaced by the gurgling râle, limited to the cardiac region, and altogether unlike any sound connected with the heart's action previously familiar to me; and when, in addition to the evidence thus afforded, there had occurred an unmistakable alteration in the percussion note over the heart, dulness having yielded to clearness, I concluded that perforation of the œsophagus had taken place, and that, besides the presence of lymph and fluid in the pericardial sac, there was also air. The diagnosis then formed and expressed was as follows:—Cancer, affecting the lower portion of the œsophagus where in contact with the pericardium; pericarditis with effusion from extension of disease in the former; finally, rupture of the œsophagus and passage of gas into the pericardium. The *post-mortem* examination, conducted on 1st September by Dr. Haldane, determined the correctness of this opinion in all essential particulars. I subjoin Dr. Haldane's report.

“The body was much emaciated: the surface very pale.

“When the chest was opened the pericardium, marked by the pressure of the ribs, bulged forwards, and on being punctured air escaped. There were no adhesions of the pericardium, but in its cavity were about three ounces of a dark-brown fetid fluid. Both surfaces of the serous membrane were coated with lymph of a yellowish-grey colour, of leathery appearance, and evidently of some standing; there was also some softer and more recent lymph, which could be readily scraped off with the nail. When the heart, which was of natural size and structure, was removed,

an irregularly circular opening admitting the point of the finger, and communicating with the Œsophagus, was found in the posterior wall of the pericardium. On examining the Œsophagus, its upper part was found healthy, but the whole of the lower part from about the middle of the thoracic portion was in a cancerous condition; about two inches and a half of its anterior wall was completely gone, and its cavity was here bounded by the back of the pericardium and by the inner margin of each lung. It was here that the pericardium was perforated, and the pleuræ covering the lungs in this situation was dull and of a brownish colour, but the lungs were not opened into.

"While the liver was being removed, it was found that the back of its left lobe was adherent to the anterior wall of the stomach in a space about the size of half-a-crown. On separating the adhesions, an opening with sloughy margins was found in the stomach, but the firm connection with the liver had prevented communication with the peritoneum. The whole of the lower part of the Œsophagus, the cardiac extremity of the stomach, and the adjoining portion of its anterior wall were cancerous; the cancer was soft and fungating, and in several situations was in a sloughy condition. The intestines were contracted. There was no other lesion."

I conclude with a very few remarks on the physical signs of Pneumo-hydro-pericarditis. Laënnec, who, as already observed, probably exaggerated the frequency of the occurrence of gas in the pericardial sac, speaks of three signs upon which dependence is to be placed in the diagnosis of air and fluid in the pericardium. 1. Unusual resonance over the lower part of the sternum. 2. Fluctuation sound (*bruit de fluctuation*) audible with the action of the heart, and on deep inspiration. 3. As specially relating to the diagnosis of pneumo-pericardium, the circumstance of the heart's sounds being heard at a distance from the chest. Upon this sign Laënnec placed very considerable reliance. He states, indeed, that his observations respecting it were made some time after those already referred to as *one* and *two*, and that he had not been able to determine whether it existed in connection with these. Dr. Stokes, whose observations on pneumo-pericarditis are most instructive, noticed the fact of the heart's sounds being heard at a distance in the case which he has recorded. He remarks, however, that this sign was not present in either Dr. Graves' or Dr. M'Dowell's cases already noticed. I have mentioned that it did not occur in the instance now recorded, and Dr. Walshe has no doubt correctly observed that Laënnec's expressed conviction, that in almost

all cases (for he uses the expression *presque tous les cas*, and not simply *occasionally*) when the heart's action is heard at a distance from the body, the cause of the phenomenon is a temporary development of gas in the pericardium (often readily absorbed, and whose presence does not give rise to any serious result), cannot at the present day be received.¹ In the remarkable case of pneumo-pericarditis related by Dr. Stokes, the following signs were observed. I give them in Dr. Stokes' own language:—"On examination a series of sounds was observable which I had never before met with. It is difficult or impossible to convey in words any idea of the extraordinary phenomena thus presented. They were not the rasping sounds of indurated lymph, or the leather creak of Collin, nor those proceeding from pericarditis with valvular murmurs, but a mixture of the various attrition murmurs with a large crepitating and a gurgling sound, while to all these phenomena was added a distinct metallic character. In the whole of my experience I never met so extraordinary a combination of sounds. The stomach was not distended by air, and the lung and pleura were unaffected, but the region of the heart gave a tympanitic *bruit de pot fêlé* on percussion, and I could form no conclusion but that the pericardium contained air in addition to an effusion of serum and coagulable lymph."² The phenomena on auscultation and percussion thus recorded will receive further value as indicating the existence of hydro-pneumo-pericarditis, if in addition there be noticed, as was done by Dr. Walshe in the "singular case of traumatic communication between the œsophagus and pericardium," referred to in his work on 'Diseases of the Heart,'³ a dull or tympanitic sound elicited over the precordial region according to the position assumed by the patient. The extreme weakness of the patient in the instance I have recorded alone prevented our determination of the existence of this important sign: from the appearances presented after death I have little doubt that, had it been in our power to alter the patient's position after the development of the peculiar auscultatory phenomena, we should have had this last indication also to guide us. Without it, however, and in default of a metallic

¹ 'Diseases of the Heart,' p. 269.

² 'Diseases of the Heart,' p. 22.

³ Page 46.

character of the cardiac sounds, as noticed by Dr. Stokes, the diagnosis of pneumo-pericarditis with effusion may I think be made from observing a gurgling or churning splash sound with the heart's action limited to the cardiac region, with which more or less of tympanitic precordial resonance is associated. Still more reliable as signs will these phenomena be if, as in the instance now recorded, the gurgling has succeeded, after its continuance for a few days, a distinct friction sound, and the tympanitic replaced a dull percussion note.



